quite as far. Caudal subtruncate. Caudal peduncle 3 times as long as deep. Uniform brownish.

Ten specimens, 75–125 mm. in total length.

Closely allied to *E. davidi*, Sauvage, from which it is distinguished especially by the wider mouth and the more slender caudal peduncle. I am indebted to Dr. Pellegrin for one of the types of *E. davidi*. This is in bad condition, but is evidently of the same species as the better-preserved specimens in the collection of the British Museum (Natural History), from the mountain streams running into the Min River, Sze Chuen Province, China.

PROCEEDINGS OF LEARNED SOCIETIES.

GEOLOGICAL SOCIETY.

January 24th, 1923.—Prof. A. C. Seward, Sc.D., F.R.S., President, in the Chair.

The following communication was read:—

On Reptilian Remains from the Karroo Beds of East Africa.' By Sidney Henry Haughton, B.A., D.Sc., F.G.S.

Three specimens of a small fossil were found by Mr. F. P. Mennell, F.G.S., in black shale in the middle of the Karroo Formation, near Tanga, on the coast of Tanganyika Territory. Two are well preserved, and are now described in detail. They represent a new genus and species of aquatic reptile, in general appearance much like *Mesosaurus*, but differing in its shorter neck, thinner ribs, relatively larger and more massive fore-limb, the presence of a large rounded sternum, and of only four distal carpal and tarsal bones instead of five. It is perhaps more closely related to *Youngina*, and may be regarded as an aquatic adaptation of that type. If so, the shale at Tanga is approximately of the same age as the Middle Beaufort Beds of South Africa.

February 16th, 1923.—Prof. A. C. Seward, Sc.D., F.R.S., President, in the Chair.

The President delivered his Anniversary Address:—

The Earlier Records of Plant-Life constituted the subject of the Presidential Address. Attention was drawn to the danger of excessive absorption in descriptive work, leading to insufficient consideration of such conclusions of general geological interest as can be drawn from the accumulated data. Reference was made to the views of Dr. Church on the origin of life in the waters of a primeval world-ocean, and on the origin of terrestrial vegetation from highly-organized Algæ transferred by emergence of portions of the Earth's crust above the surface of the water from an existence on the ocean-floor to life on land. It was suggested that the vegetation of the land may have received additions from upraised portions of the crust at more than one epoch in the history of the Earth. The course of evolution could probably be more correctly illustrated by the conception of separate lines of development, than by that of a branching tree implying the common origin of the main groups of plants. The unfolding of plant-life must be considered in relation to the changing geological background. The climatic and physical conditions of the Pre-Cambrian Era were briefly considered, and various kinds of indirect evidence of the existence of plant-life were critically examined: reference was made to graphite, supposed algal remains in association with oolitic structure, *Cryptozoon*, and the structures described by Dr. C. D. Walcott as Algæ or as the result of algal agency. Attention was called to the importance of carefully investigating diffusion-phenomena, as illustrated by the so-called Liesegang figures, as a possible explanation of the origin of some of the structures which are usually attributed to organic agency. We have no knowledge of any Pre-Cambrian land-flora. Palæobotanical records from Cambrian, Ordovician, and Silurian strata were briefly summarized, including some account of *Girvanella*, *Eophyton*, *Solenopora*, *Nematophycus*, *Pachytheca*, and *Parka*. Reasons were given for assigning some of the Cambrian Algæ described by Dr. Walcott to the Cyanophyceæ, especially *Marpolia spissa*.

In the second part of the Address, the older Devonian floras were reviewed, and some of the more characteristic genera described, special attention being directed to the petrified plants from the Rhynie chert-bed, discovered by Dr. W. Mackie, and described in detail by Dr. R. Kidston and Prof. W. H. Lang. Reference was made to the differences between the older Devonian floras and those of Upper Devonian age. The question of the common origin of the phyla of Lycopods and Ferns was considered, and preference was expressed for the view which regards them as independently-evolved groups. In conclusion, the wide geographical range of *Archæopteris* was emphasized, and reference was made to the difficult problems raised by the occurrence of Upper Devonian floras well within the Arctic circle, at least equal (in the variety of the plants and in the vigorous development of the vegetation) to the more southern floras of Ireland, Belgium, and other regions.

February 28th, 1923.—Prof. A. C. Seward, Sc.D., F.R.S., President, and afterwards Prof. W. W. Watts, Sc.D., F.R.S., Vice-President, in the Chair.

The following communications were read:—

1. 'The Late Glacial Stage of the Lea Valley (Third Report).' By Samuel Hazzledine Warren, F.G.S.

Since the publication of the previous papers on the subject, one new section of the same series of deposits has been found. This was in a different situation from the others, as it occurred at the level of, and in the area occupied by, the Middle or Taplow Terrace, whereas all the other sections were in the Low Terrace. It consisted of a bed of seed-bearing clay, in the middle of an old gravel-pit, partly built over, and consequently its precise stratigraphical relations to the Taplow gravel were not discoverable. The Taplow deposits yield a fairly temperate fauna and flora, and it is therefore concluded that the Arctic deposit cannot be of Taplow date. The site is close to the head of a small streamlet, and it is assumed, although it cannot be proved, that the Arctic plant-bed is of Low-Terrace or Ponders-End date, and that it represents the silting of a stream which flowed across the Taplow Terrace.

The paper is accompanied by a report on the Arctic flora by Mrs. E. M. Reid & Miss M. E. J. Chandler, in which some 48 species of flowering plants are recorded, and the conclusion is reached that there is nothing to distinguish the flora from that of the previously-described localities of the Lea Valley.

2. 'The *Elephas-antiquus* Bed of Clacton-on-Sea (Essex), and its Flora and Fauna.' By Samuel Hazzledine Warren, F.G.S.

The paper describes detailed work on the flora and fauna of the well-known *Elephas-antiquus* Bed of Clacton-on-Sea. The deposit fills a deep, narrow, steep-sided river-channel which apparently had only a very short course, and flowed into the Thames or one of its tributaries when that river occupied the deep channel now submerged off the coast of Essex. The small Clacton channel was cut during this period of rejuvenescence in the Taplow-Terrace stage of the Thames Valley, and its silting-up may have been due to the first setting-in of the submergence which culminated in the estuarine sands that overlie the Elephant-Bed and occupy the upper part of the cliff-section.

The Clacton bed yields evidence of an abundant flint-industry which is one of the best-known representatives of the Mesvinian series. This is of Late Chellean or Early Acheulean date, although it shows no cultural connexion with those industries, but it may very well be the precursor of Mousterian.

The deposit is also rich in mammalian remains, and the commonest species are *Elephas antiquus*, *Rhinoceros megarhinus*, *Rh. hemitœchus*, *Bos primigenius*, and *Cervus browni*.